



## SEQUENCE LISTING

<110> Takatsuki, Hiroshi  
Nakagawa, Hitoshi  
Director General of National Institute of Agrobiological  
Resources, Ministry of Agriculture, Forestry and Fisheries

<120> Method for Shortening Internode of Inflorescence by  
Introducing Gene for Petunia Transcription Factor PetSPL2

<130> 085761-000400US

<140> US 09/156,580

<141> 1998-09-18

<150> JP 10-224852

<151> 1998-08-07

<160> 18

<170> PatentIn Ver. 2.0

<210> 1

<211> 997

<212> DNA

<213> Petunia hybrida var. Mitchell

<220>

<221> CDS

<222> (190)..(810)

<223> PetSPL2 transcription factor

<400> 1

cccgatgccca ttttttctct ctagtcaagc tctctatatc atcatcacta ttcccttggc 60

tgcaagtaaca ctctatttta accctcacia aaaaattacc agagggcagc aaaaaatgct 120

tgaacataat tattatactt actattaagc tagatttcct cttgatcttg ctagggttga 180

ctggagaaa atg gca ggc atg gat aga aac agt ttc aac agt aag tac ttc 231

Met Ala Gly Met Asp Arg Asn Ser Phe Asn Ser Lys Tyr Phe

1 5 10

aaa aac aaa agc atc atg gca aga cag atg gag tac ttg aat aac aac 279

Lys Asn Lys Ser Ile Met Ala Arg Gln Met Glu Tyr Leu Asn Asn Asn

15 20 25 30

aat ggc gac aat aac aac aac aat aat gtt aca agc tca tta cga gat 327

Asn Gly Asp Asn Asn Asn Asn Asn Val Thr Ser Ser Leu Arg Asp

35 40 45

aat tat gga aat gaa gat cat tta ctt ggt gga cta ttc tct tgg cct 375

Asn Tyr Gly Asn Glu Asp His Leu Leu Gly Gly Leu Phe Ser Trp Pro

50 55 60

cca aga tct tat aca tgt agc ttt tgt aaa agg gaa ttt aga tct gct 423

Pro Arg Ser Tyr Thr Cys Ser Phe Cys Lys Arg Glu Phe Arg Ser Ala

65 70 75

23

caa gct ctt ggt gga cac atg aat gtt cat aga aga gat aga gcc att 471  
 Gln Ala Leu Gly Gly His Met Asn Val His Arg Arg Asp Arg Ala Ile  
 80 85 90  
 ttg aga caa tca cca cct aga gat att aat agg tat tct ctt cta aac 519  
 Leu Arg Gln Ser Pro Pro Arg Asp Ile Asn Arg Tyr Ser Leu Leu Asn  
 95 100 105 110  
 ctt aat ctt gaa cca aac cct aac ttt tac cct agt cat aac cct agt 567  
 Leu Asn Leu Glu Pro Asn Pro Asn Phe Tyr Pro Ser His Asn Pro Ser  
 115 120 125  
 ttt tca aga aaa ttc cca cct ttt gaa atg agg aaa tta gga aaa gga 615  
 Phe Ser Arg Lys Phe Pro Pro Phe Glu Met Arg Lys Leu Gly Lys Gly  
 130 135 140  
 gtt gtt cca aac aat cac ttg aaa agt gcc aga ggg cgt ttt gga gtt 663  
 Val Val Pro Asn Asn His Leu Lys Ser Ala Arg Gly Arg Phe Gly Val  
 145 150 155  
 gag aaa att gac tct ttc atg caa gaa aaa gaa tgt act act aca gtg 711  
 Glu Lys Ile Asp Ser Phe Met Gln Glu Lys Glu Cys Thr Thr Thr Val  
 160 165 170  
 atc aag aag tcc gag ttt cta aga ttg gac ttg gga att ggg ttg atc 759  
 Ile Lys Lys Ser Glu Phe Leu Arg Leu Asp Leu Gly Ile Gly Leu Ile  
 175 180 185 190  
 agt gaa tca aag gaa gat tta gat ctt gaa ctt cga ctg gga tcc act 807  
 Ser Glu Ser Lys Glu Asp Leu Asp Leu Leu Arg Leu Gly Ser Thr  
 195 200 205  
 taactatatac taattttttac ggcattaagg tttgttaaatt gagtcgacag cttagtgcaaa 867  
 actacttatg cactttaata tggcttcttg tgctatatatt atttatttta catggctgta 927  
 tctaggtttg cattttaaga ttttagtacct tgtcagatta aaagaaaacg aaagttaaatt 987  
 taaaaaaaaa 997

<210> 2  
 <211> 206  
 <212> PRT  
 <213> Petunia sp.

<400> 2  
 Met Ala Gly Met Asp Arg Asn Ser Phe Asn Ser Lys Tyr Phe Lys Asn  
 1 5 10 15  
 Lys Ser Ile Met Ala Arg Gln Met Glu Tyr Leu Asn Asn Asn Asn Gly  
 20 25 30  
 Asp Asn Asn Asn Asn Asn Asn Val Thr Ser Ser Leu Arg Asp Asn Tyr  
 35 40 45  
 Gly Asn Glu Asp His Leu Leu Gly Gly Leu Phe Ser Trp Pro Pro Arg  
 50 55 60  
 Ser Tyr Thr Cys Ser Phe Cys Lys Arg Glu Phe Arg Ser Ala Gln Ala  
 65 70 75 80

24

Leu Gly Gly His Met Asn Val His Arg Arg Asp Arg Ala Ile Leu Arg  
                             85                            90                            95  
 Gln Ser Pro Pro Arg Asp Ile Asn Arg Tyr Ser Leu Leu Asn Leu Asn  
                             100                            105                            110  
 Leu Glu Pro Asn Pro Asn Phe Tyr Pro Ser His Asn Pro Ser Phe Ser  
                             115                            120                            125  
 Arg Lys Phe Pro Pro Phe Glu Met Arg Lys Leu Gly Lys Gly Val Val  
                             130                            135                            140  
 Pro Asn Asn His Leu Lys Ser Ala Arg Gly Arg Phe Gly Val Glu Lys  
                             145                            150                            155                            160  
 Ile Asp Ser Phe Met Gln Glu Lys Glu Cys Thr Thr Thr Val Ile Lys  
                             165                            170                            175  
 Lys Ser Glu Phe Leu Arg Leu Asp Leu Gly Ile Gly Leu Ile Ser Glu  
                             180                            185                            190  
 Ser Lys Glu Asp Leu Asp Leu Glu Leu Arg Leu Gly Ser Thr  
                             195                            200                            205

<210> 3  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:degenerate  
           primer 1

<220>  
 <221> modified\_base  
 <222> (6)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (9)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (12)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (15)  
 <223> i

<400> 3  
 cargcnytng gnggncay

25

<210> 4  
 <211> 18  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:degenerate  
 primer 2

<220>  
 <221> modified\_base  
 <222> (3)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (6)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (9)  
 <223> i

<400> 4  
 ytnngnggnc ayatgaay

18

<210> 5  
 <211> 17  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:degenerate  
 primer 3

<220>  
 <221> modified\_base  
 <222> (3)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (6)  
 <223> i

<220>  
 <221> modified\_base  
 <222> (12)  
 <223> i

<400> 5  
 arncknaryt cnarrtc

17

<210> 6  
 <211> 6  
 <212> PRT  
 <213> Artificial Sequence

26

<220>

<223> Description of Artificial Sequence:amino acids  
present in both SUPERMAN gene of Arabidopsis  
thaliana and GmN479 gene of soy bean root nodules

<400> 6

Gln Ala Leu Gly Gly His  
1 5

<210> 7

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:amino acids  
present in both SUPERMAN gene of Arabidopsis  
thaliana and GmN479 gene of soy bean root nodules

<400> 7

Leu Gly Gly His Met Asn  
1 5

<210> 8

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:amino acids  
present in both SUPERMAN gene of Arabidopsis  
thaliana and GmN479 gene of soy bean root nodules

<400> 8

Asp Leu Glu Leu Arg Leu  
1 5

<210> 9

<211> 43

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:SUPERMAN zinc  
finger motif

<400> 9

Ser Tyr Thr Cys Ser Phe Cys Lys Arg Glu Phe Arg Ser Ala Gln Ala  
1 5 10 15

Leu Gly Gly His Met Asn Val His Arg Arg Asp Arg Ala Arg Leu Arg  
20 25 30

Leu Gln Gln Ser Pro Ser Ser Ser Ser Thr Pro  
35 40

27

<210> 10  
 <211> 42  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PetSPL1 zinc  
 finger motif

<400> 10  
 Ser Tyr Thr Cys Ser Phe Cys Lys Arg Glu Phe Arg Ser Ala Gln Ala  
 1 5 10 15  
 Leu Gly Gly His Met Asn Val His Arg Arg Asp Arg Ala Arg Leu Arg  
 20 25 30  
 Leu Gln Ser Pro Pro Arg Glu Asn Gly Thr  
 35 40

<210> 11  
 <211> 41  
 <212> PRT  
 <213> Artificial Sequence


<220>  
 <223> Description of Artificial Sequence:PetSPL2 zinc  
 finger motif

<400> 11  
 Ser Tyr Thr Cys Ser Phe Cys Lys Arg Glu Phe Arg Ser Ala Gln Ala  
 1 5 10 15  
 Leu Gly Gly His Met Asn Val His Arg Arg Asp Arg Ala Ile Leu Arg  
 20 25 30  
 Gln Ser Pro Pro Arg Asp Ile Asn Arg  
 35 40

<210> 12  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PetSPL3 zinc  
 finger motif

<400> 12  
 Ser Tyr Glu Cys Asn Phe Cys Lys Arg Gly Phe Ser Asn Ala Gln Ala  
 1 5 10 15  
 Leu Gly Gly His Met Asn Ile His Arg Lys Asp Lys Ala Lys Leu Lys  
 20 25 30  
 Lys Gln Lys Gln His Gln Arg Gln Gln Lys Pro  
 35 40



<210> 13  
 <211> 43  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PetSPL4 zinc  
 finger motif

<400> 13  
 Phe Tyr Arg Cys Ser Phe Cys Lys Arg Gly Phe Ser Asn Ala Gln Ala  
   1                  5                  10                  15  
 Leu Gly Gly His Met Asn Ile His Arg Lys Asp Arg Ala Lys Leu Arg  
                   20                  25                  30  
 Glu Ile Ser Thr Asp Asn Leu Asn Ile Asp Gln  
                   35                  40

<210> 14  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:SPERMAN  
 C-terminal hydrophobic region

<400> 14  
 Ile Leu Arg Asn Asp Glu Ile Ile Ser Leu Glu Leu Glu Ile Gly Leu  
   1                  5                  10                  15  
 Ile Asn Glu Ser Glu Gln Asp Leu Asp Leu Glu Leu Arg Leu Gly Phe  
                   20                  25                  30

Ala

<210> 15  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PetSPL1  
 C-terminal hydrophobic region

<400> 15  
 Leu Met Lys Arg Ser Glu Phe Leu Arg Leu Glu Leu Gly Ile Gly Met  
   1                  5                  10                  15  
 Ile Asn Glu Ser Lys Glu Asp Leu Asp Leu Glu Leu Arg Leu Gly Tyr  
                   20                  25                  30

Thr

29

<210> 16  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:Pet SPL2  
 C-terminal hydrophobic region

<400> 16  
 Val Ile Lys Lys Ser Glu Phe Leu Arg Leu Asp Leu Gly Ile Gly Leu  
           1                  5                  10                  15  
 Ile Ser Glu Ser Lys Glu Asp Leu Asp Leu Glu Leu Arg Leu Gly Ser  
                   20                  25                  30

Thr

<210> 17  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PetSPL3  
 C-terminal hydrophobic region

<400> 17  
 Gly Ser Val Asp Ser Arg Glu Asn Arg Leu Pro Ala Arg Asn Gln Glu  
           1                  5                  10                  15  
 Thr Thr Pro Phe Tyr Ala Glu Leu Asp Leu Glu Leu Arg Leu Gly His  
                   20                  25                  30

Glu

<210> 18  
 <211> 33  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:PetSPL4  
 C-terminal hydrophobic region

<400> 18  
 Cys Gly Thr Leu Asp Glu Lys Pro Lys Arg Gln Ala Glu Asn Asn Asp  
           1                  5                  10                  15  
 Met Gln Gln Asp Asp Ser Lys Leu Asp Leu Glu Leu Arg Leu Gly Pro  
                   20                  25                  30

Asp

30